

Date: September 25th, 2009 - Yeah! Friday!!!

Title: Dilations and Scale Factor

Objective: To use my proportional reasoning to create dilations and understand scale factor.

IN: **Neatly** a coordinate plane that goes from 0 to 10 on the x-axis, and 0 to 10 on the y-axis.

Draw a rectangle with vertices at: (1, 1), (1, 2), (3, 2) and (3, 1).

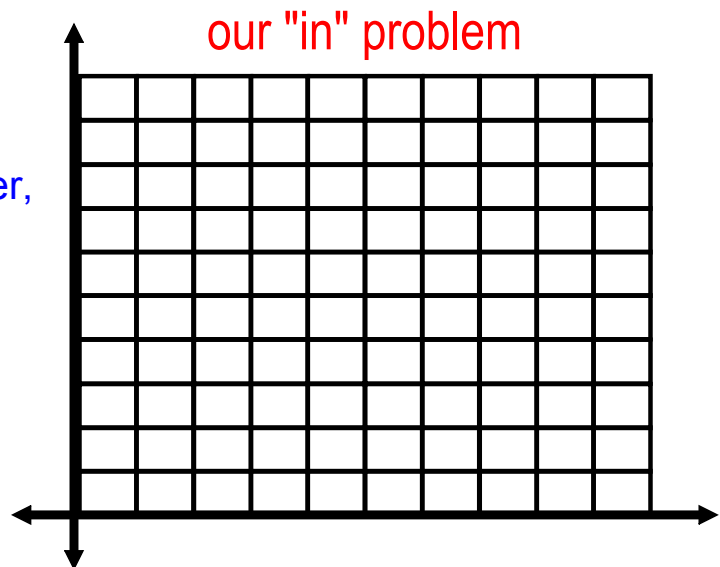
Multiply each coordinate of each vertex by 3 to find the vertices of a new rectangle. Draw the new rectangle.

Volunteer?

On your engineering paper, neatly a coordinate plane that goes from 0 to 10 on the x-axis, and 0 to 10 on the y-axis.

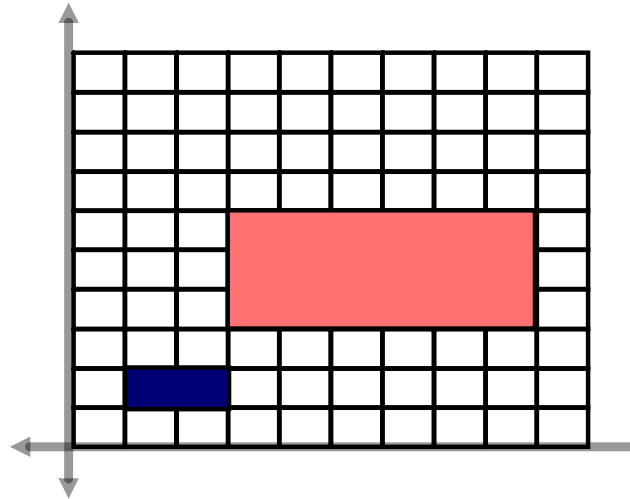
Draw a rectangle with vertices at: (1, 1), (1, 2), (3, 2) and (3, 1).

Multiply each coordinate of each vertex by 3 to find the vertices of a new rectangle. Draw the new rectangle.

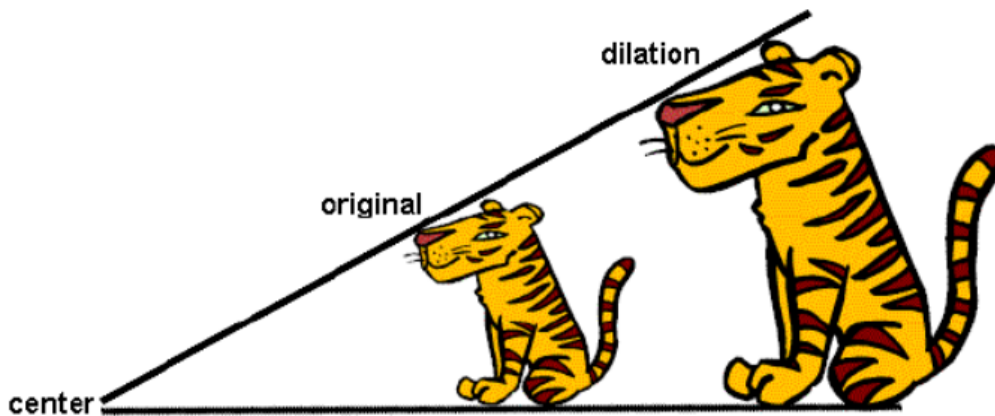


In your notes (Key section):

A **TRANSFORMATION** is a change made to the location, size or shape of a figure.



A **DILATION** is a transformation that produces an image that is the **same shape** as the original, but is a **different size**.



A **DILATION** is a transformation in which a figure **STRETCHES** or **SHRINKS** with respect to a fixed point called the **CENTER OF DILATION**.

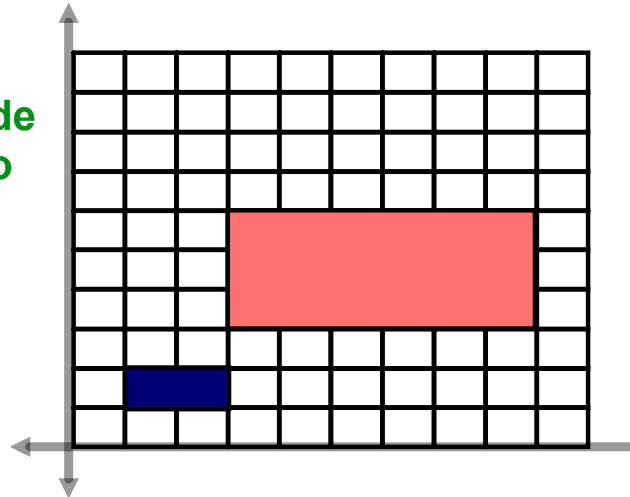
You are probably familiar with the word "**dilate**" as it relates to the eye. "**The pupils of the eye were dilated.**" As light hits the eye, the pupil enlarges or contracts depending upon the amount of light. This concept of enlarging and contracting is "dilating".



The washers shown in this photo illustrate the concept of dilation. The washers are the same shape, but they are different in size.

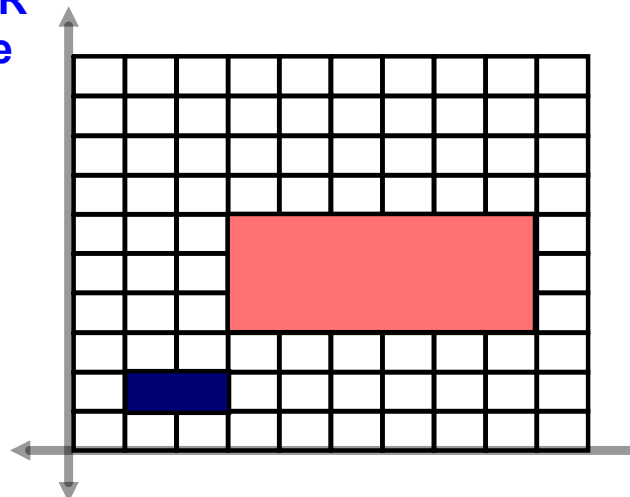


The **SCALE FACTOR** of a dilation is the ratio of a side length of the new image to the corresponding side length of a the original figure.



What is the **SCALE FACTOR** that was used to create the new rectangle?

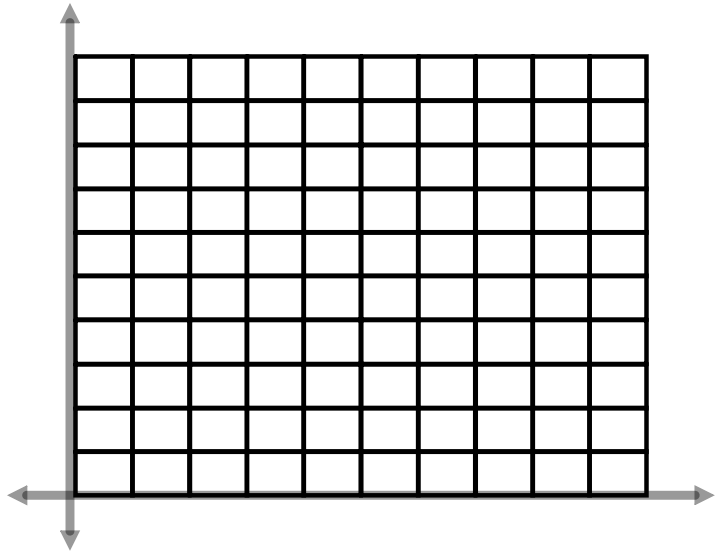
Because the scale factor was greater than one, the figure is "**stretched**".



What would cause a figure to "shrink"?

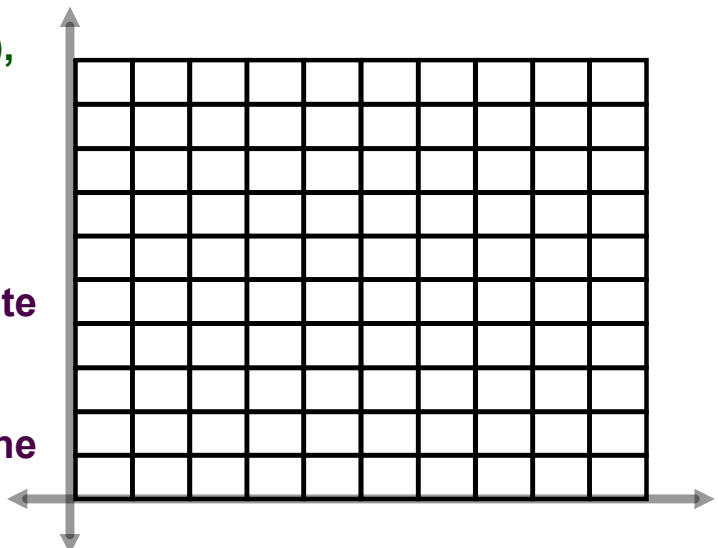
Draw a triangle with vertices at $(2, 6)$, $(2, 2)$ and $(6, 4)$

Dilate the triangle using a scale factor of $\frac{1}{2}$.



Draw a rectangle with vertices at: $(1, 1)$, $(1, 2)$, $(3, 2)$ and $(3, 1)$.

Multiply each coordinate of each vertex by 3 to find the vertices of a new rectangle. Draw the new rectangle.



Dilation practice



[Click here](#)

Summary: Dilations are _____
that _____. Scale factor...

Out: Think about dilations. When would creating a dilation be important? What careers might take advantage of scale factors?

Homework:

- Using the internet, find a simple clipart and print it out. Or, use one of your own drawings for this assignment.
- As neatly as possible - WITH A RULER and your engineering paper - draw a grid that covers the entire picture.
- **Make sure you record the size of your units on your grid.**
- Draw a dilation of your clipart (a stretch or a shrink).

